

## North Dakota

Most of the electricity in North Dakota (90 percent) is generated at coal-fired power plants. The four largest plants in the State, including the largest, Antelope Valley, are coal-fired. North Dakota is also reliant on its only hydroelectric power plant, Garrison, which is the fifth largest plant in the State, for 10 percent of its electricity. These five largest power plants are all located in the vicinity of Bismarck in the central part of the State. The largest utility is the Basin Electric Power Cooperative. The State enjoys the sixteenth lowest-cost retail electricity, with an average revenue per kilowatthour of 5.65 cents, below the national average of 6.89 cents.

No North Dakota generating units are required to begin compliance with the stricter emissions standards for sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) in Title IV of the Clean Air Act Amendments of 1990. North Dakota's emissions of SO<sub>2</sub>, NO<sub>x</sub>, and carbon dioxide ranked about in the middle of all of the States in the Nation in 1996, and contributed about 1 percent of the national total of each pollutant.

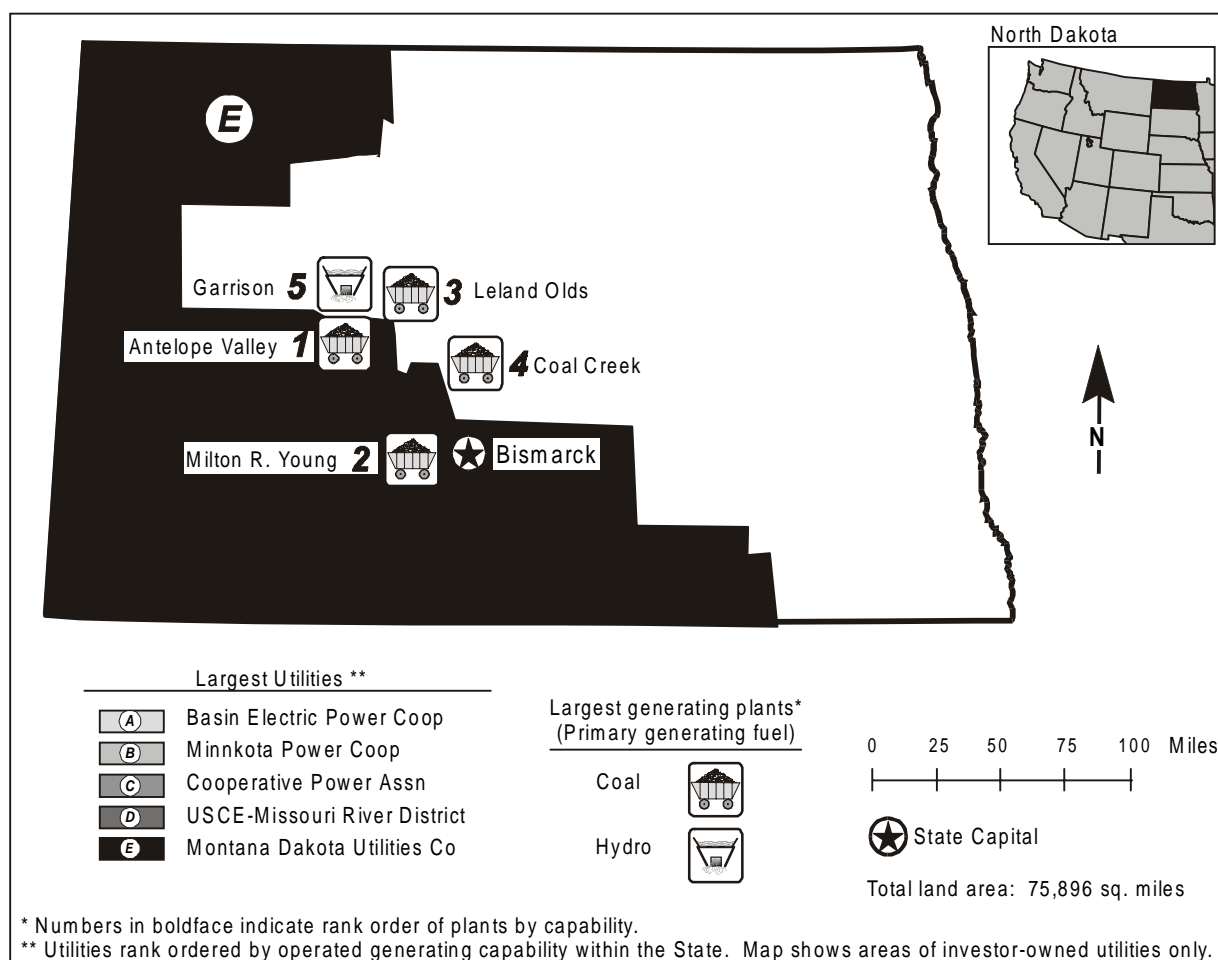
The investor-owned utilities in North Dakota (Otter Tail Power, Northern States Power, and Montana-Dakota Utilities) sell more than 50 percent of retail electricity in the State. Basin Electric Cooperative, Coop Power Association, and Minnkota Power, major cooperative generation suppliers, and the U.S. Army Corps of Engineers (USCE) provide most of the rest of the State's electric power. Net generation in North Dakota exceeds retail sales, decreasing the necessity of importing higher priced power from other regions.

The North Dakota Public Service Commission (PSC) opened a generic investigation into the restructuring of

their electric power industry in February 1996. An order was issued in September 1996 to continue the study of restructuring and its implications. Stated in the order was "Restructuring efforts are normally pursued when prices become too high or the service is unacceptable. Neither is the case in North Dakota." After public hearings and comments, the PSC concluded that restructuring was not an immediate need. However, they felt that they should continue to study the issues to be prepared in the event that a Federal mandate is passed or all other States adopt retail competition. In February 1997, the PSC adopted the National Association of Regulatory Utility Commissioners principles to serve as a guide to possible restructuring. Two general principals stress that restructuring should occur when two specific goals are met: improved economic efficiency and serving the broader public interest.

A joint legislative committee was created in March 1997 to investigate restructuring. The 6-year standing committee is required to study and make recommendations for the 1999 legislative session. The committee began a series of meetings in July 1997. Discussions have included tax implications of restructuring; rates of investor-owned and cooperative utilities; impacts of competition on generation, transmission, and distribution of electricity; proposed Federal legislation; the Federal Energy Regulatory Commission wholesale competition orders; energy efficiency and low-income programs; and the current tax structure for the State's investor-owned utilities. Tax issues have been a major focus of study, and legislation may be introduced in 1999 to address them. A final report from the committee was due in late 1998.<sup>1</sup>

<sup>1</sup> Energy Information Administration, Status of State Electric Utility Deregulation Activity, [http://www.eia.doe.gov/cneaf/electricity/chg\\_str/tab5rev.html](http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html).

**Table 1. 1996 Summary Statistics**

Item	Value	U.S. Rank	Item	Value	U.S. Rank
NERC Region(s) . . . . .		MAPP	<b>Utility</b>		
Net Exporter or Importer . . . .		Exporter	Capability (MWe) . . . . .	4,207	41
State Primary Generating Fuel		Coal	Generation (MWh) . . . . .	30,769,712	33
Population (as of 7/96) . . . . .	642,633	47	Average Age of Coal Plants . . . .	19 years	
Average Revenue (cents/kWh)	5.65	<sup>a</sup> 16	Average Age of Oil-fired Plants	27 years	
<b>Industry</b>			Average Age of Gas-fired Plants	43 years	
Capability (MWe) . . . . .	W	<sup>b</sup> W	Average Age of Nuclear Plants	--	
Generation (MWh) . . . . .	W	<sup>b</sup> W	Average Age of		
Capability/person			Hydroelectric Plants . . . . .	39 years	
(KWe/person) . . . . .	W	<sup>b</sup> W	Average Age of Other Plants . . .	--	
Generation/person			<b>Nonutility<sup>c</sup></b>		
(MWh/person) . . . . .	W	<sup>b</sup> W	Capability (MWe) . . . . .	W	W
Sulfur Dioxide Emissions			Percentage Share of Capability	W	W
(Thousand Short Tons) . . . .	139	22	Generation (MWh) . . . . .	W	W
Nitrogen Oxide Emissions			Percentage Share of Generation	W	W
(Thousand Short Tons) . . . .	113	29	-- = Not applicable. W = Withheld.		
Carbon Dioxide Emissions					
(Thousand Short Tons) . . . .	34,456	29			
Sulfur Dioxide/sq. mile (Tons)	2.01	28			
Nitrogen Oxides/sq. mile (Tons)	1.64	33			
Carbon Dioxide/sq. mile (Tons)	499.41	32			

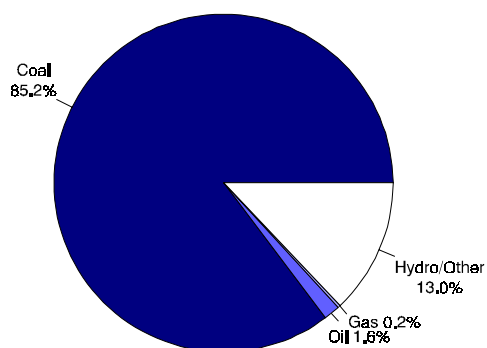
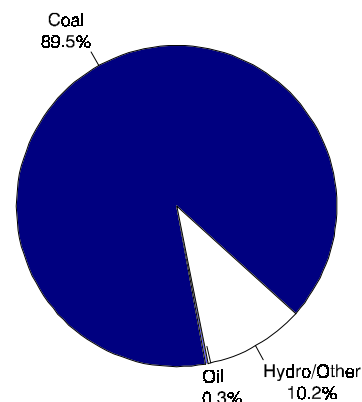
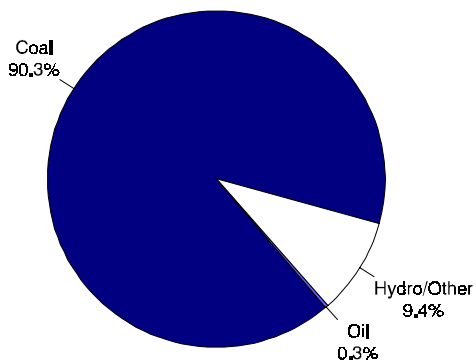
**Table 2. Five Largest Utility Plants, 1996**

Plant Name	Type	Operating Utility	Net Capability (MWe)
1. Antelope Valley .....	Coal	Basin Electric Power Coop	900
2. Milton R Young .....	Coal	Minnkota Power Coop Inc	670
3. Leland Olds .....	Coal	Basin Electric Power Coop	650
4. Coal Creek .....	Coal	Coop Power Assn	605
5. Garrison .....	Hydro	USCE-Missouri River District	545

**Table 3. Top Five Utilities with Largest Generating Capability, and Type, Within the State, 1996**  
(Megawatts Electric)

Utility	Net Summer Capability	Net Coal Capability	Net Oil Capability	Net Gas Capability	Net Nuclear Capability	Net Hydro/Other Capability
A. Basin Electric Power Coop .....	1,550	1,550	--	--	--	--
B. Minnkota Power Coop Inc .....	685	670	15	--	--	--
C. Coop Power Assn .....	605	604	1	--	--	--
D. USCE-Missouri River District ....	545	--	--	--	--	545
E. Montana-Dakota Utilities Co ....	533	523	--	10	--	0
Total .....	3,918	3,347	16	10	--	545
Percentage of Utility Capability ..	93.1	--	--	--	--	--

-- = Not applicable.

**Figure 1. Utility Generating Capability by Primary Energy Source, 1996**

**Figure 2. Utility Generation by Primary Energy Source, 1996**

**Figure 3. Energy Consumed at Electric Utilities by Primary Energy Source, 1996**


**Table 4. Electric Power Industry Generating Capability by Primary Energy Source, 1986, 1991, and 1996**  
(Megawatts Electric)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal . . . . .	3,876	3,903	3,585	85.6	85.9	85.2
Oil . . . . .	95	88	68	2.1	1.9	1.6
Gas . . . . .	10	10	10	0.2	0.2	0.2
Nuclear . . . . .	--	--	--	--	--	--
Hydro/Other . . . . .	545	545	545	12.0	12.0	13.0
Total Utility . . . . .	4,526	4,546	4,207	100.0	100.0	100.0
Total Nonutility . . . . .	W	W	W	--	--	--

-- = Not applicable. W = Withheld.

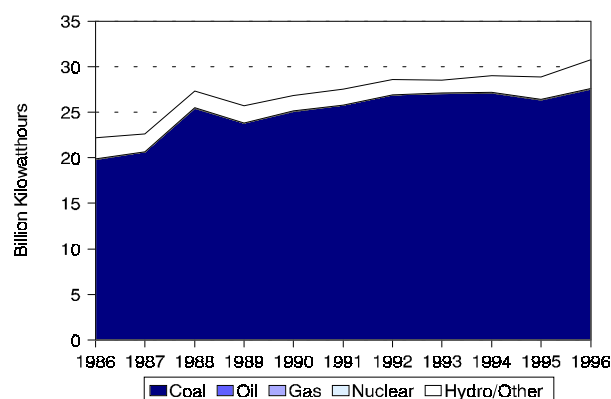
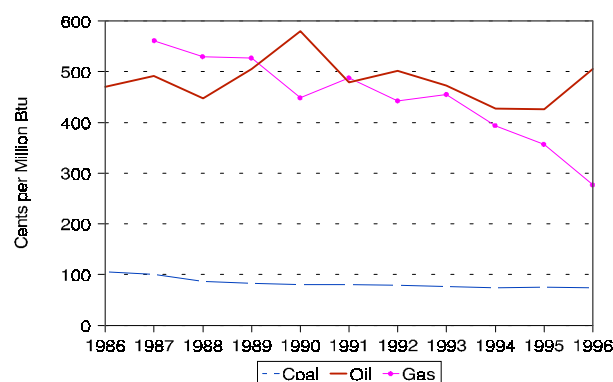
**Table 5. Electric Power Industry Generation of Electricity by Primary Energy Source, 1986, 1991, and 1996**  
(Thousand Kilowatthours)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal . . . . .	19,835,472	25,750,792	27,529,906	89.4	93.5	89.5
Oil . . . . .	20,496	27,636	88,834	0.1	0.1	0.3
Gas . . . . .	6	-78	99	(s)	(s)	(s)
Nuclear . . . . .	--	--	--	--	--	--
Hydro/Other . . . . .	2,326,291	1,756,684	3,150,873	10.5	6.4	10.2
Total Utility . . . . .	22,182,265	27,535,034	30,769,712	100.0	100.0	100.0
Total Nonutility . . . . .	W	W	W	--	--	--

-- =Not applicable. (s) = Nonzero percentage less than 0.05 if the value is positive and greater than -0.05 if value is negative.  
W = Withheld.**Table 6. Electric Power Industry Consumption by Primary Energy Source, 1986, 1991, and 1996**  
(Quadrillion Btu)

Fuel	1986	1991	1996	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Coal . . . . .	0.228	0.293	0.312	90.2	94.0	90.3
Oil . . . . .	(s)	(s)	0.001	0.1	0.1	0.3
Gas . . . . .	(s)	(s)	(s)	--	--	--
Nuclear . . . . .	--	--	--	--	--	--
Hydro/Other . . . . .	0.024	0.018	0.032	9.6	5.8	9.4
Total Utility . . . . .	0.252	0.311	0.345	100.0	100.0	100.0
Total Nonutility . . . . .	W	W	W	--	--	--

-- = Not applicable. (s) = Nonzero value less than 0.0005. W = Withheld.

**Figure 4. Utility Generation of Electricity by Primary Energy Source, 1986-1996****Figure 5. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986-1996**  
(1996 Dollars)

**Table 7. Utility Delivered Fuel Prices for Coal, Oil, and Gas, 1986, 1991, and 1996**  
(Cents per Million Btu, 1996 Dollars)

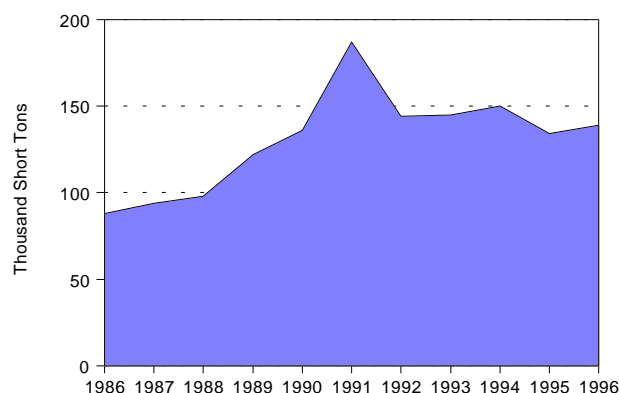
Fuel	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Coal .....	106.0	79.7	73.7	-3.6
Oil .....	470.5	478.9	505.1	0.7
Gas .....	--	487.7	276.6	--

-- = Not applicable.

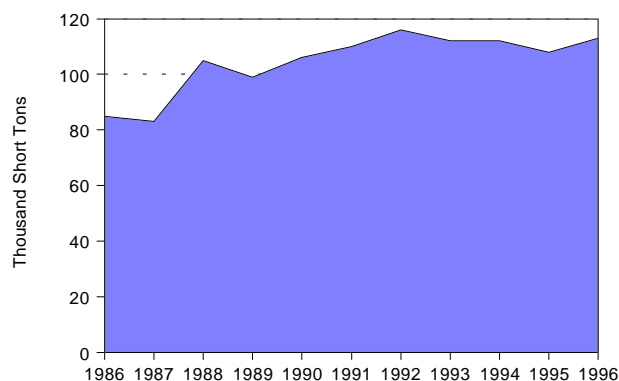
**Table 8. Electric Power Industry Emissions Estimates, 1986, 1991, and 1996**  
(Thousand Short Tons)

Emission Type	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)
Sulfur Dioxide . . . .	88	187	139	4.7
Nitrogen Oxides <sup>d</sup> . .	85	110	113	2.9
Carbon Dioxide <sup>d</sup> . .	25,167	32,025	34,456	3.2

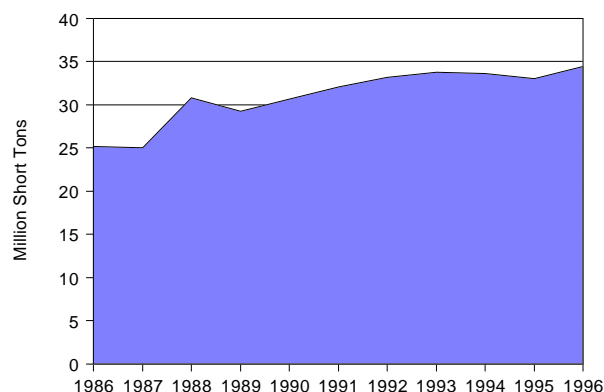
**Figure 6. Estimated Sulfur Dioxide Emissions, 1986-1996**



**Figure 7. Estimated Nitrogen Oxide Emissions, 1986-1996**



**Figure 8. Estimated Carbon Dioxide Emissions, 1986-1996**



**Table 9. Utility Retail Sales by Sector, 1986, 1991, and 1996**  
(Megawatthours)

Sector	1986	1991	1996	Annual Growth Rate 1986-1996 (Percent)	Percentage Share 1986	Percentage Share 1991	Percentage Share 1996
Residential . .	2,953,892	3,096,207	3,601,630	2.0	43.1	42.7	43.3
Commercial	1,514,547	1,875,987	2,377,747	4.6	22.1	25.9	28.6
Industrial . . .	1,890,301	1,762,080	1,835,276	-0.3	27.6	24.3	22.1
Other . . . . .	490,072	520,927	499,506	0.2	7.2	7.2	6.0
Total . . . . .	6,848,812	7,255,201	8,314,159	2.0	100.0	100.0	100.0

**Table 10. Utility Retail Sales Statistics, 1986, 1991, and 1996**

Item	Investor-Owned Utility	Public	Federal	Cooperative	Total
	1986				
Number of Utilities .....	3	12	1	26	42
Number of Retail Customers .....	195,427	14,650	14	100,506	310,597
Retail Sales (MWh) .....	3,541,251	262,995	88,982	2,955,584	6,848,812
Percentage of Retail Sales .....	51.7	3.8	1.3	43.2	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup> .....	270,733	13,157	702	223,671	508,467
Percentage of Revenue .....	53.2	2.6	0.2	44.0	100.0
1991					
Number of Utilities .....	3	11	1	25	40
Number of Retail Customers .....	200,898	11,219	16	104,660	316,793
Retail Sales (MWh) .....	3,958,268	237,906	140,364	2,918,663	7,255,201
Percentage of Retail Sales .....	54.6	3.3	1.9	40.2	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup> .....	251,768	11,628	1,408	204,370	469,349
Percentage of Revenue .....	53.6	2.5	0.3	43.5	100.0
1996					
Number of Utilities .....	3	12	1	25	41
Number of Retail Customers .....	208,443	10,899	11	113,385	332,738
Retail Sales (MWh) .....	4,493,524	270,622	101,487	3,448,526	8,314,159
Percentage of Retail Sales .....	54.1	3.3	1.2	41.5	100.0
Revenue from Retail Sales (thousand 1996 \$) <sup>e</sup> .....	253,019	11,753	1,493	203,232	469,497
Percentage of Revenue .....	53.9	2.5	0.3	43.3	100.0